

SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 311716

NAME: 3,4-Dihydro-2*H*-pyran

SYNONYMS: 2,3-Dihydro-4*H*-pyran

5,6-Dihydro-4*H*-pyran

DHP

24 HOUR EMERGENCY

TELEPHONE:

Within USA/Canada: +1 800-633-8253

Outside USA/Canada: +1 801-629-0667

TO REQUEST AN MSDS: +1 888-535-2444

CUSTOMER +1 888-535-2444

SERVICE:

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

FLAMMABLE LIQUIDS (CATEGORY 2), H225 SKIN IRRITATION (CATEGORY 2), H315 EYE IRRITATION (CATEGORY 2A), H319 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3), RESPIRATORY SYSTEM, H335

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM

SIGNAL WORD DANGER

HAZARD STATEMENT(S)

H225 HIGHLY FLAMMABLE LIQUID AND VAPOUR.

H315 CAUSES SKIN IRRITATION.

H319 CAUSES SERIOUS EYE IRRITATION.

H335 MAY CAUSE RESPIRATORY IRRITATION.

PRECAUTIONARY STATEMENT(S) P210 KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. - NO SMOKING. P233 KEEP CONTAINER TIGHTLY CLOSED. P240 GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT. USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ P241 LIGHTING/ EQUIPMENT. USE ONLY NON-SPARKING TOOLS. P242 TAKE PRECAUTIONARY MEASURES AGAINST STATIC P243 DISCHARGE. P261 AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY. P264 WASH SKIN THOROUGHLY AFTER HANDLING. P271 USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA. WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE P280 PROTECTION/ FACE PROTECTION. IF ON SKIN (OR HAIR): REMOVE/ TAKE OFF IMMEDIATELY ALL P303 + P361 + P353CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER. IF INHALED: REMOVE VICTIM TO FRESH AIR AND KEEP AT P304 + P340REST IN A POSITION COMFORTABLE FOR BREATHING. P305 + P351 + P338IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES. IF PRESENT AND EASY TO DO. CONTINUE RINSING. CALL A POISON CENTER OR DOCTOR/PHYSICIAN IF YOU FEEL P312 UNWELL. P321 SPECIFIC TREATMENT (SEE SUPPLEMENTAL FIRST AID

INSTRUCTIONS ON THIS LABEL).

P332 + P313IF SKIN IRRITATION OCCURS: GET MEDICAL ADVICE/

ATTENTION.

P337 + P313IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/

ATTENTION.

P362 TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE

REUSE.

P370 + P378IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR

ALCOHOL-RESISTANT FOAM FOR EXTINCTION.

P403 + P233STORE IN A WELL-VENTILATED PLACE. KEEP CONTAINER

TIGHTLY CLOSED.

STORE IN A WELL-VENTILATED PLACE, KEEP COOL. P403 + P235

P405 STORE LOCKED UP.

P501 DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED

WASTE DISPOSAL PLANT.

HAZARDS NOT NONE OTHERWISE

CLASSIFIED (HNOC) OR NOT COVERED

BY GHS

COMPOSITION/INFORMATION ON INGREDIENTS SECTION 3.

MF: C₅H₈O

MW: 84.12 CAS-NO. 110-87-2

PURITY: $\geq 98\%$ (GC)

HAZARDOUS COMPONENTS

| COMPONENT | CLASSIFICATION | CONCENTRATION |
|-------------------------------|---------------------------------|---------------|
| 3,4-Dihydro-2 <i>H</i> -pyran | | |
| | FLAM. LIQ. 2; SKIN IRRIT. 2; | - |
| | EYE IRRIT. 2A; STOT SE 3; H225, | |
| | H315, H319, H335 | |

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA

SHEET TO THE DOCTOR IN ATTENDANCE.MOVE OUT OF

DANGEROUS AREA.

IF INHALED IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT

BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A

PHYSICIAN.

IN CASE OF SKIN WASH OFF WITH SOAP AND PLENTY OF WATER.

CONTACT CONSULT A PHYSICIAN.

IN CASE OF EYE RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT

CONTACT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.

IF SWALLOWED DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY

MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH

WITH WATER. CONSULT A PHYSICIAN.

MOST IMPORTANT

THE MOST IMPORTANT KNOWN SYMPTOMS AND

EFFECTS ARE DESCRIBED IN THE LABELLING (SEE

SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE

EFFECTS, BOTH ACUTE SECTION 2.2) AND/OR IN SECTION 11

INDICATION OF ANY NO DATA AVAILABLE

IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT

AND DELAYED

NEEDED

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA FOR SMALL (INCIPIENT) FIRES, USE MEDIA SUCH AS "ALCOHOL" FOAM, DRY CHEMICAL, OR CARBON DIOXIDE. FOR LARGE FIRES, APPLY WATER FROM AS FAR AS POSSIBLE. USE VERY LARGE QUANTITIES (FLOODING) OF WATER APPLIED AS A MIST OR SPRAY; SOLID STREAMS OF WATER MAY BE INEFFECTIVE. COOL ALL AFFECTED CONTAINERS WITH FLOODING

QUANTITIES OF WATER.

SPECIAL HAZARDS ARISING FROM THE CARBON OXIDES

SUBSTANCE OR MIXTURE

DISTANCE., CONTAINER EXPLOSION MAY OCCUR UNDER

FIRE CONDITIONS.

ADVICE FOR FIREFIGHTERS

WEAR SELF CONTAINED BREATHING APPARATUS FOR

FLASH BACK POSSIBLE OVER CONSIDERABLE

FIRE FIGHTING IF NECESSARY.

FURTHER INFORMATION USE WATER SPRAY TO COOL UNOPENED CONTAINERS.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL
PRECAUTIONS,
PROTECTIVE
EQUIPMENT AND
EMERGENCY
PROCEDURES

USE PERSONAL PROTECTIVE EQUIPMENT. AVOID BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. REMOVE ALL SOURCES OF IGNITION. EVACUATE PERSONNEL TO SAFE AREAS. BEWARE OF VAPOURS ACCUMULATING TO FORM

ACCUMULATE IN LOW AREAS.

FOR PERSONAL PROTECTION SEE SECTION 8.

EXPLOSIVE CONCENTRATIONS. VAPOURS CAN

ENVIRONMENTAL PRECAUTIONS

PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP CONTAIN SPILLAGE, AND THEN COLLECT WITH AN ELECTRICALLY PROTECTED VACUUM CLEANER OR BY

WET-BRUSHING AND PLACE IN CONTAINER FOR DISPOSAL ACCORDING TO LOCAL REGULATIONS (SEE

SECTION 13).

REFERENCE TO OTHER SECTIONS

FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOUR OR MIST.

USE EXPLOSION-PROOF EQUIPMENT.KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.TAKE MEASURES

TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE. FOR PRECAUTIONS SEE SECTION 2.2.

CONDITIONS FOR SAFE STORAGE, INCLUDING

ANY

INCOMPATIBILITIES

STORE IN COOL PLACE. KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE.

CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE.

SPECIFIC END USE(S) APART FROM THE USES MENTIONED IN SECTION 1.2 NO

OTHER SPECIFIC USES ARE STIPULATED

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL

PARAMETERS

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL

EXPOSURE LIMIT VALUES.

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE

BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

FACE SHIELD AND SAFETY GLASSES USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166(EU).

SKIN PROTECTION

HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE"S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

SPLASH CONTACT

MATERIAL: NITRILE RUBBER

MINIMUM LAYER THICKNESS: 0.4 MM

BREAK THROUGH TIME: 30 MIN

MATERIAL TESTED: CAMATRIL (KCL 730, SIZE M)

IF USED IN SOLUTION, OR MIXED WITH OTHER SUBSTANCES, AND UNDER CONDITIONS WHICH DIFFER FROM EN 374, CONTACT THE SUPPLIER OF THE CE APPROVED GLOVES. THIS RECOMMENDATION IS ADVISORY ONLY AND MUST BE EVALUATED BY AN INDUSTRIAL HYGIENIST AND SAFETY OFFICER FAMILIAR WITH THE SPECIFIC SITUATION OF ANTICIPATED USE BY OUR CUSTOMERS. IT SHOULD NOT BE CONSTRUED AS OFFERING AN APPROVAL FOR ANY SPECIFIC USE

SCENARIO.

BODY PROTECTION IMPERVIOUS CLOTHING, FLAME RETARDANT ANTISTATIC

PROTECTIVE CLOTHING, THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS

SUBSTANCE AT THE SPECIFIC WORKPLACE.

RESPIRATORY WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING **PROTECTION** RESPIRATORS ARE APPROPRIATE USE A FULL-FACE

RESPIRATOR WITH MULTI- PURPOSE COMBINATION (US)
OR TYPE ABEK (EN 14387) RESPIRATOR CARTRIDGES AS A

BACKUP TO ENGINEERING CONTROLS. IF THE

RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A

FULL-FACE SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

CONTROL OF ENVIRONMENTAL EXPOSURE PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO

SO. DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE Colorless liquid

ODOUR NO DATA AVAILABLE
ODOUR THRESHOLD NO DATA AVAILABLE
PH NO DATA AVAILABLE

MELTING

POINT/FREEZING POINT

INITIAL BOILING POINT 84 - 88 °C

AND BOILING RANGE

FLASH POINT -16 °C

EVAPORATION RATE NO DATA AVAILABLE FLAMMABILITY (SOLID, NO DATA AVAILABLE

GAS)

UPPER/LOWER UPPER EXPLOSION LIMIT: 13.8 %(V) FLAMMABILITY OR LOWER EXPLOSION LIMIT: 1.1 %(V)

EXPLOSIVE LIMITS

VAPOUR PRESSURE NO DATA AVAILABLE

VAPOUR DENSITY 2.90 - (AIR = 1.0)

RELATIVE DENSITY 0.93

WATER SOLUBILITY NO DATA AVAILABLE PARTITION COEFFICIENT: NO DATA AVAILABLE

N- OCTANOL/WATER

AUTO-IGNITION NO DATA AVAILABLE

TEMPERATURE

DECOMPOSITION NO DATA AVAILABLE

TEMPERATURE

VISCOSITY NO DATA AVAILABLE EXPLOSIVE PROPERTIES NO DATA AVAILABLE OXIDIZING PROPERTIES NO DATA AVAILABLE

OTHER SAFETY INFORMATION

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY NO DATA AVAILABLE

CHEMICAL STABILITY STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

POSSIBILITY OF HAZARDOUS REACTIONS

VAPOURS MAY FORM EXPLOSIVE MIXTURE WITH AIR.

CONDITIONS TO AVOID HEAT, FLAMES AND SPARKS. EXTREMES OF

TEMPERATURE AND DIRECT SUNLIGHT.

INCOMPATIBLE MATERIALS

OXIDIZING AGENTS, STRONG ACIDS, ALCOHOLS

HAZARDOUS OTHER DECOMPOSITION PRODUCTS - NO DATA

DECOMPOSITION AVAILABLE

PRODUCTS IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY NO DATA AVAILABLE

DERMAL: NO DATA AVAILABLE

SKIN NO DATA AVAILABLE

CORROSION/IRRITATION

SERIOUS EYE NO DATA AVAILABLE

DAMAGE/EYE IRRITATION

RESPIRATORY OR SKIN

SENSITISATION

NO DATA AVAILABLE

GERM CELL NO DATA AVAILABLE

MUTAGENICITY

CARCINOGENICITY

IARC: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS

GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS

PROBABLE, POSSIBLE OR CONFIRMED HUMAN

CARCINOGEN BY IARC.

ACGIH: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS

GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY ACGIH.

NTP: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS

GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A

KNOWN OR ANTICIPATED CARCINOGEN BY NTP.

OSHA: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS

GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY OSHA.

REPRODUCTIVE TOXICITY NO DATA AVAILABLE

SPECIFIC TARGET ORGAN

TOXICITY - SINGLE

EXPOSURE

INHALATION - MAY CAUSE RESPIRATORY IRRITATION.

SPECIFIC TARGET ORGAN

TOXICITY - REPEATED

EXPOSURE

NO DATA AVAILABLE

ASPIRATION HAZARD NO DATA AVAILABLE

ADDITIONAL RTECS: NOT AVAILABLE

INFORMATION TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL,

PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE

NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY NO DATA AVAILABLE

PERSISTENCE AND

DEGRADABILITY

NO DATA AVAILABLE

BIOACCUMULATIVE

POTENTIAL

NO DATA AVAILABLE

MOBILITY IN SOIL NO DATA AVAILABLE

RESULTS OF PBT AND

VPVB ASSESSMENT

PBT/VPVB ASSESSMENT NOT AVAILABLE AS CHEMICAL

SAFETY ASSESSMENT NOT REQUIRED/NOT

CONDUCTED

OTHER ADVERSE EFFECTS NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH

AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA

CARE IN IGNITING AS THIS MATERIAL IS HIGHLY

FLAMMABLE. OFFER SURPLUS AND NON-RECYCLABLE

SOLUTIONS TO A LICENSED DISPOSAL COMPANY. CONTACT A LICENSED PROFESSIONAL WASTE

DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

CONTAMINATED PACKAGING

DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

PROPER SHIPPING NAME: 2,3-DIHYDROPYRAN

UN NUMBER: 2376 CLASS: 3 PACKING GROUP: II MARINE POLLUTANT: NO POISON INHALATION NO

HAZARD:

IMDG

PROPER SHIPPING NAME: 2.3-DIHYDROPYRAN

UN NUMBER: 2376 CLASS: 3 **PACKING GROUP:** II

F-E, S-D EMS-NO: MARINE POLLUTANT: NO

IATA

PROPER SHIPPING NAME: 2,3-DIHYDROPYRAN

UN NUMBER: 2376 CLASS: 3 PACKING GROUP: II

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS SARA 302: NO CHEMICALS IN THIS MATERIAL ARE

SUBJECT TO THE REPORTING REQUIREMENTS OF SARA

TITLE III, SECTION 302.

SARA 313 COMPONENTS SARA 313: THIS MATERIAL DOES NOT CONTAIN ANY

CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS

THAT EXCEED THE THRESHOLD (DE MINIMIS)

REPORTING LEVELS ESTABLISHED BY SARA TITLE III,

SECTION 313.

SARA 311/312 HAZARDS FIRE HAZARD, ACUTE HEALTH HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE

3,4-Dihydro-2*H*-pyran 110-87-2 4/24/1993

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE

3,4-Dihydro-2*H*-pyran 110-87-2 4/24/1993

NEW JERSEY RIGHT TO KNOW COMPONENTS

CAS-NO. REVISION DATE

3,4-Dihydro-2*H*-pyran 110-87-2 4/24/1993

CALIFORNIA PROP. 65

COMPONENTS KI

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR ANY OTHER REPRODUCTIVE HARM.

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

EYE IRRIT. EYE IRRITATION

FLAM. LIQ. FLAMMABLE LIQUIDS

H225 HIGHLY FLAMMABLE LIQUID AND VAPOUR.

H315 CAUSES SKIN IRRITATION.

H319 CAUSES SERIOUS EYE IRRITATION. H335 MAY CAUSE RESPIRATORY IRRITATION.

SKIN IRRIT. SKIN IRRITATION

STOT SE SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE

HMIS RATING

HEALTH HAZARD: 2

CHRONIC HEALTH

HAZARD: FLAMMABILITY:

3

PHYSICAL HAZARD 0

NFPA RATING

HEALTH HAZARD: 2 FIRE HAZARD: 3 REACTIVITY HAZARD: 0

MSDS LEGEND

MW: MOLECULAR WEIGHT MF: MOLECULAR FORMULA

VOC: VOLATILE ORGANIC COMPOUNDS

ACGIH: AMERICAN CONFERENCE OF GOVERNMENENTAL INDUSTRIAL

HYGINISTS

CAS: CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

PEL: PERMISSIBLE EXPOSURE LIMIT (OSHA) TLV: THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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